EPA's National-Scale Activity Surveys

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1. **Goals of the surveys**: The National-Scale Activity Survey (N-SAS) will be a national-scale survey to collect a variety of data related to the Air Quality Index (AQI) and the public's awareness of and response to air pollution in general, focusing initially on ozone with the potential for future waves focusing on particle pollution. The data collected through N-SAS will support accountability initiatives and policy analysis at EPA. N-SAS consists of two complementary surveys. The first is a cross-sectional survey measuring awareness, knowledge and stated responses to air quality warnings. The second will collect activity diary data on a smaller sample of individuals in a specific area or areas to measure actual behavioral changes on high ozone days.

2. **The surveys will focus on measuring the following**:
   - the public's level of awareness and knowledge of ozone pollution and the health threats posed by ozone;
   - the public's level of awareness and knowledge of air quality warning systems (such as those derived from the Air Quality Index), including the sensitive populations identified and recommendations for reducing exposure and improving the overall level of air quality;
   - exposure reduction behavior and emission reduction behavior (both stated and actual); and
   - willingness-to-pay (WTP) values related to the benefits of information about air quality.

3. **Primary expected uses of the surveys' data**:
   - **Accountability initiatives**: To measure the effectiveness of air pollution warnings in promoting behavior change (individual exposure and emission reduction measures). The cross-sectional survey will establish baseline data on awareness and knowledge for effectiveness measures and to assess change over time in future studies. The longitudinal study will provide data to compare actual behavior reported in activity diaries with reported behavior from the cross-sectional survey. It will also provide more detailed information on behavior for both effectiveness measure and to assess change over time.

   - **Enhance the design of informational-outreach programs such as the AQI**: At a national level, N-SAS will provide insight into how well air pollution warnings reach target subpopulations, and EPA could work with national groups (e.g., AARP or AHA) to address identified problems. N-SAS will provide a national benchmark against which states can evaluate the effectiveness of state and local information and outreach programs. This information could provide the basis for evaluating the effectiveness of alternative programs used in different states. The survey will also identify ways in which the AQI message might be customized to improve understanding by target populations. Data on how the public perceives air pollution warnings could be useful in the design of environmental health risk communications beyond just the AQI.

- **Improve exposure modeling**: Modeling exposure to pollutants can be improved with more detailed information on individual behavior on high pollution days as well as other exposure-related factors (e.g., housing characteristics, neighborhood attributes, health status etc). The cross-sectional data will provide qualitative information on the likelihood that different populations may change their behavior on high pollution days and other factors that could affect exposure modeling. This data could be used to develop future studies of exposure. The activity diary data will provide more detailed information on behavior that will be incorporated into the Consolidated Human Activity Database and used to improve exposure and risk analysis.

- **Improve economic benefits analysis**: Economic benefit analysis could be improved in several ways. Actions like staying indoors impose a cost on individuals that is typically not accounted for in quantitative benefit analysis. The cross-sectional data will provide qualitative information on the likelihood that different populations report taking different self-protection actions on high pollution days. This information would provide the basis for designing future studies to look more closely at certain populations or behaviors. The activity diary data will provide more detailed information on behavior change that could more accurately quantify the benefits of air quality improvements. Data collected through N-SAS will allow us to determine the degree to which mitigating/averting behavior exists in the population and consequently, the degree to which this factor needs to be considered as part of accountability assessment or policy analysis. In addition, a question about the public's willingness to pay for improved information about air quality or air quality improvements will provide additional information about the benefits of EPA programs, information campaigns and regulations.

4. **Cross-sectional survey**
    a. Content: questions to measure awareness, knowledge and risk perceptions related to air quality and reported behavior changes.
    b. Sample:
        i. representative sample of US population age 55+ living in MSA's that experienced at least one code orange day in the last three years.
        ii. survey will be conducted in English and Spanish
        iii. sample size based on ability to compare responses of important subsamples of the population
    c. Mode of administration: telephone, RDD sample
        i. include cell phone only sample to complement RDD
        ii. lead letters and incentives
        iii. non-response follow-up studies
    d. Additional factors: consider a web-panel sample (see 5d. below) to improve compatibility with longitudinal activity diary survey and to research mode/sample selection issues for future surveys

5. **Longitudinal activity diary survey**
    a. Content: 24 hour activity diaries, plus sample will take cross-sectional survey
    b. Sample:
        i. adults age 55+ in 4 to 6 cities with air pollution problems (English speakers only)

        ii.   survey will consist of a screening survey that includes some questions from the cross-sectional survey, seven activity diaries, and a debriefing survey with additional questions from the cross-sectional survey

        iii. survey will be conducted in English

        iv. sample size and number of diaries per individual based on ability to detect changes of a given size in time outdoors comparing days with high and low ozone pollution

c. Mode of administration: web panel (Knowledge Networks)

        i.   lead emails and incentives

        ii.   non-response follow-up studies

        iii. web-panel provides important advantages over telephone including the ability to collect more detailed information more frequently and the option for episodic surveys after high ozone days

d. Consider administering cross-sectional survey to special web panel (currently being created by Knowledge Networks for the American National Election Survey focusing on increased response rates).

6. Timeline

a. January 2008 pretest and peer review N-SAS survey instruments.

b. February 2008 submit ICR to OMB.

c. Spring 2008 prepare to field N-SAS longitudinal survey (cross-sectional survey contingent on funding).

d. June to September 2008 field N-SAS longitudinal survey (cross-sectional survey contingent on funding).

e. Fall 2008 prepare summary of survey results.

7. Opportunities for additional data collection and research

a. Prepare companion survey for use by state and local air quality regulators

b. Make data available to researchers, with proper security procedures

c. Nonresponse and mode studies on phone and web panel data

d. Health-risk communication studies